

WHAT IS CLAIMED IS:

1. A control system for a vehicle, comprising:

a generating device,

a battery,

a motor electrically connected to the generating device and battery, which drives the vehicle, and

a controller which functions to:

determine a running condition of the vehicle,

compute a target motor power, which is a target value of the power of the motor, based on the vehicle running condition,

compute an available output from the battery to the motor based on the target motor power,

compute a target generated power, which is a target value of the power generated by the generating device, based on the available battery output and target motor power, and

control the generating device based on the target generated power.

2. The control system as defined in Claim 1, wherein:

the generating device comprises an engine and a generator connected to the engine, and

the controller further functions to control the rotation speed of the generator and torque of the engine based on the target generated power.

3. The control system as defined in Claim 1, wherein the controller further functions

to:

- compute a voltage required to obtain the target motor power, and
- compute the available battery output based on the required voltage.

4. The control system as defined in Claim 3, wherein the controller further functions to compute the available battery output to be smaller, the higher the required voltage becomes.

5. The control system as defined in Claim 4, further comprising:

- a sensor which detects a state of charge of the battery, and
- the controller further functions to compute the available battery output to be smaller, the lower the state of charge of the battery becomes.

6. The control system as defined in Claim 4, further comprising:

- a sensor which detects a temperature of the battery, and
- the controller further functions to compute the available battery output to be smaller, the lower the battery temperature becomes.

7. The control system as defined in Claim 1, wherein the controller further functions to:

- compute a target battery output, which is a target value of the power output from the battery, to make the state of charge of the battery approach a target value,
- compute the target generated power by subtracting the target battery output from the target motor power when the target battery output is smaller than the available battery output, and

compute the target generated power by subtracting the available battery output from the target motor power when the target battery output is larger than the available battery output.

8. A control system for a vehicle, comprising:

a generating device,

a battery,

a motor electrically connected to the generating device and battery, which drives the vehicle,

means for determining a running condition of the vehicle,

means for computing a target motor power, which is a target value of the power of the motor, based on the vehicle running condition,

means for computing an available output from the battery to the motor based on the target motor power,

means for computing a target generated power, which is a target value of the power generated by the generating device, based on the available battery output and target motor power, and

means for controlling the generating device based on the target generated power.

9. A vehicle control method used for a vehicle including a generating device a battery and a motor electrically connected to the generating device and battery, which drives the vehicle, the method comprising:

determining a running condition of the vehicle,

computing a target motor power, which is a target value of the power of the

motor, based on the vehicle running condition,

computing an available output from the battery to the motor based on the target motor power,

computing a target generated power, which is a target value of the power generated by the generating device, based on the available battery output and target motor power, and

controlling the generating device based on the target generated power.